

To: Christoph Goss[christoph.goss@deereault.com]
Cc: Way, Steven[way.steven@epa.gov]; Griswold, Hays[Griswold.Hays@epa.gov]
From: Matt Francis
Sent: Wed 9/9/2015 3:44:50 PM
Subject: FW: portal shoring materials
[Meyco367Foam.pdf](#)

From: Sorenson - DNR, Allen [mailto:allen.sorenson@state.co.us]
Sent: Saturday, August 08, 2015 10:45 AM
To: Way, Steven <way.steven@epa.gov>; Matt Francis <m.francis@erllc.com>; Griswold, Hays <Griswold.Hays@epa.gov>; Petri, Elliott <Elliott.Petri@westonsolutions.com>
Subject: portal shoring materials

The proposed plan for stabilizing the Gold King portal is to install ten foot diameter culvert with 12-inch drain pipes against each rib. It looks like these can be pushed in using the excavator once the timber posts in the slot are moved out of the way. Couplings for the culvert sections would be nice, but unless they can be installed safely (men working in the slot is not safe at this time) as the culvert is pushed in segment-by-segment, the couplings aren't absolutely necessary. The sections can be joined from the inside using straps and bolts later. It's hard to estimate how much we need since we can't get a good look into the mine, but I'm sure that four more 10-foot sections (for a total of 55-feet) will get used. The adit might pinch down inby, and we might have to transition to smaller diameter culvert farther in, or go to steel or timber sets.

The leading edge of the sections are going to get hung up on the floor during pushing operations, so timber skids need to be fabricated and installed to keep this from happening.

Once the culvert is in, foam will be injected to fill the void above the culvert. This is a urea silicate foam, we've used Meyco 367, see attachment. It's hard to estimate how much is needed without getting into the mine, but it looks like it will be at least 300 cubic yards. Here is a supplier contact, and attached is a brochure:

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Regional Manager, GMS West

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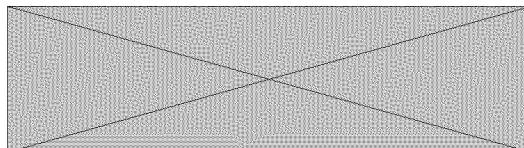
Please run this plan by Harrison Western to see if they have any issues with constructability or have any other ideas!

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Allen C. Sorenson

Project Manager/Geological Engineer

Inactive Mine Reclamation Program



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